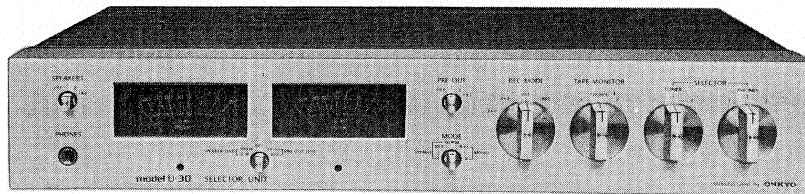


ONKYO® SERVICE MANUAL

PEAK METER AND SELECTOR UNIT Model U-30

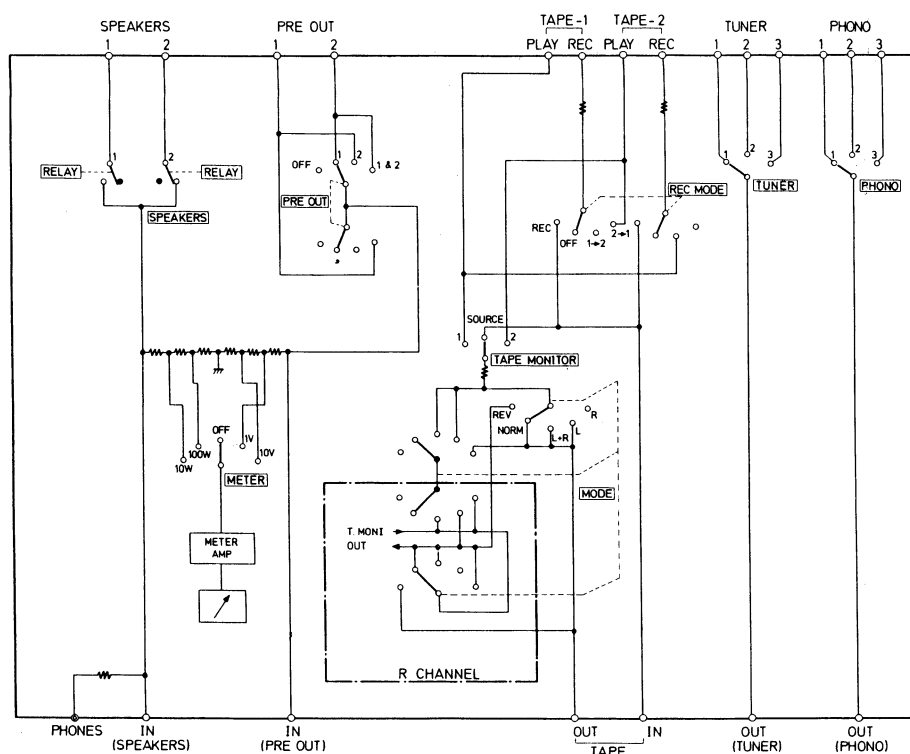


SPECIFICATIONS

<p>Controls:</p> <p>Inputs:</p> <p>Outputs:</p>	<p>Selector: Phono (1,2,3) Tuner (1,2,3) Tape Monitor (1, Source, 2) Rec Mode (1-2, 2-1, Off, Rec) Pre Out (Off, 1, 2, 1 & 2) Mode (Norm, Rev, R+L, L, R) Peak Meter Switch (100W, 10W, 1V, 10V) Speakers (Off, 1, 2, 1 & 2)</p> <p>Phono 1, 2, 3 Tuner 1, 2, 3 Tape Play 1, 2 Tape In Pre Out In Speaker In Phono Out Tuner Out Tape Rec 1, 2 Tape Out Pre Out 1, 2 Speaker 1, 2</p>	<p>Peak Meter Section</p> <p>Sensitivity: 1V, 10V for Pre Out 10W, 100W for Speakers (8 ohms)</p> <p>Indicating Range: -40 dB - +5 dB</p> <p>Accuracy: +5 - -10dB ± 1 dB -10 - -30dB ± 3 dB -30 - -40dB ± 5 dB</p> <p>Frequency Response: 20 Hz - 20,000 Hz ± 1 dB</p> <p>Response (Attack) Time: 100 μsec.</p> <p>Recovery Time: 1 sec.</p> <p>Input Impedance: 100 kohms</p> <p>Semiconductors: 4 IC's, 9 Transistors, 25 Diodes</p> <p>Power Supply Rating: AC 120V 60Hz or AC 220V 50 Hz</p> <p>Dimensions: 450(W) x 83(H) x 360(D) mm 17 3/4" x 3 5/16" x 14 3/16"</p> <p>Weight: 6 kg (13.2 lbs.)</p> <p>Headphones (Phones)</p>
Specifications and features are subject to change without notice.		

ONKYO®
AUDIO COMPONENTS

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

The U-30 is specifically designed for use with a preamp such as the P-303 in a multicapability system allowing switching between 3 turntables, 3 tuners (or AUX), 2 tape decks, 2 power amps, and 2 sets of speaker systems. The circuit is constructed as shown in the block diagram with components and wiring layed out for minimum electrostatic capacitance so that there is no adverse influence in amplifier performance. Silver contacts on the relays and high power capacity copper wires in the speaker

circuit are used to improve sound quality. In the meter circuit the PRE OUT or SPEAKERS signal as determined by the meter switch passes through the buffer amp Q701 and enters Q703. Q703 is an operational amplifier; by means of a combination of feedback elements the signal is logarithmically compressed, thereby increasing the range of the meter. The Q703 circuit is shown in fig. 1. In this diagram R713 is for DC load feedback while R717, R719, D701, and D703 are logarithmic compression elements. A thermistor, TH701, is included for the correction of temperature characteristics of D701 and D703.

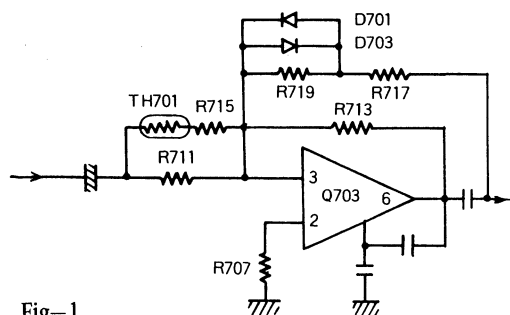


Fig-1

Q705 is a full wave linear detection circuit made up of two op amps: one an inversion type; the other, non-inversion. These outputs are then amplified and emerge in opposite phase to be combined by D713 and C717. The circuit has outstanding temperature characteristics. D705 and D709 are for negative feedback.

After passing through the buffer amp Q707, the full wave rectified wave is smoothed and integrated at D713 and C717.

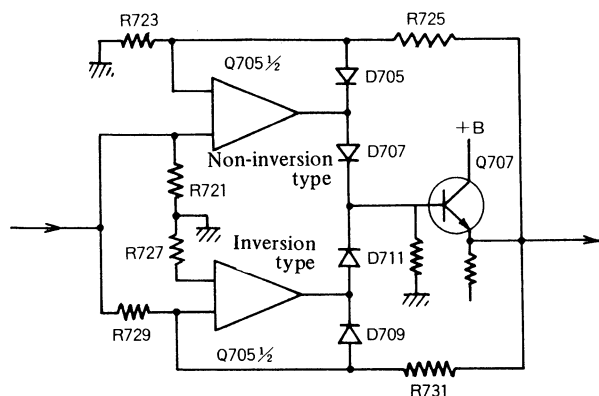


Fig-2

Then its impedance is changed at Q709 after which it drives the meter. The peak hold time of the meter is determined by the time constant of C717 and R739. Q11 is a transient killer; since the Eb of Q713 reaches operational voltage about 2 seconds later than Ec because of C721, Q711 remains off during this period and current does not run to the meter. After a brief period, when Eb reaches operational voltage, about 1.2V are generated in the emitter thereby turning on Q711 and beginning meter operation. When the power is turned off, C721 quickly discharges due to D726 and the meter turns off.

METER SENSITIVITY ADJUSTMENT

- (1) "0" position adjustment:
With the power off, insert a flat blade screwdriver in the zero adjustment hole below the meters on the front panel. Adjust the needle so that it lies at the far left of the meter scale.
- (2) Sensitivity adjustment:
Plug in the unit and let it warm up for 15 minutes. Then apply a 1kHz sine wave to the PRE OUT IN terminal. With the meter sensitivity at 1V, turn R743 (R744) so that the meter gives a 0dB reading.

SERVICE GUIDE

- (1) Since the U-30 has no power switch, plug the cord into a switched outlet on the rear of the preamp so that it may be turned on and off by means of the preamp's power switch.
- (2) To prevent induced hum which may cause needle movement or other undesirable effects, be sure to connect the U-30 GND terminal to the ground terminal of the preamp.
- (3) The meter indication is appropriate for a speaker impedance of 8ohms. For other speaker impedances obtain the correct value by the following method:

$$\text{Speaker input power (W)} = \frac{8}{R} \times [\text{meter indication (W)}]$$
R: Speaker input impedance
- (4) Although this applies to all components, it is best to keep the pin cords that connect the various components away from power cords and the power amp's transformer in order to prevent induced hum.

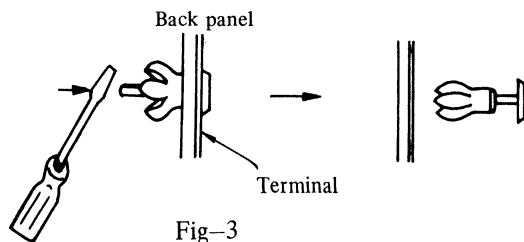
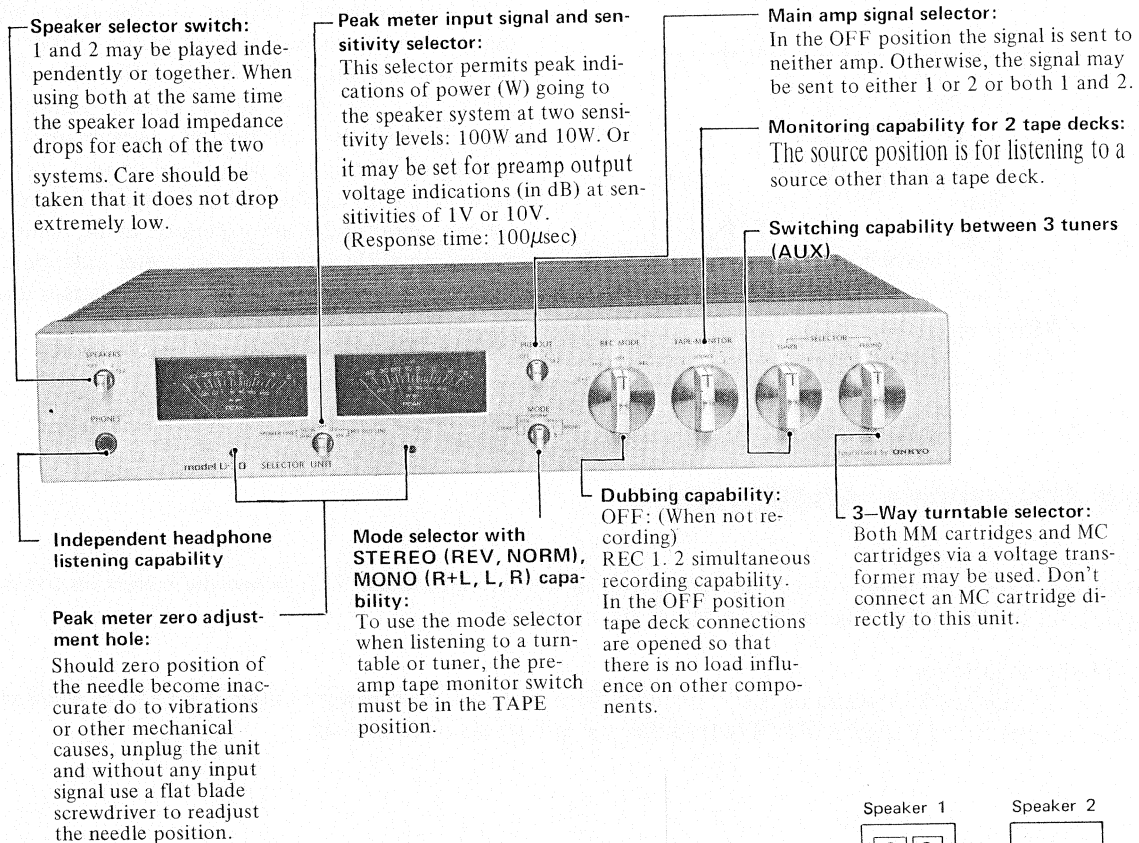


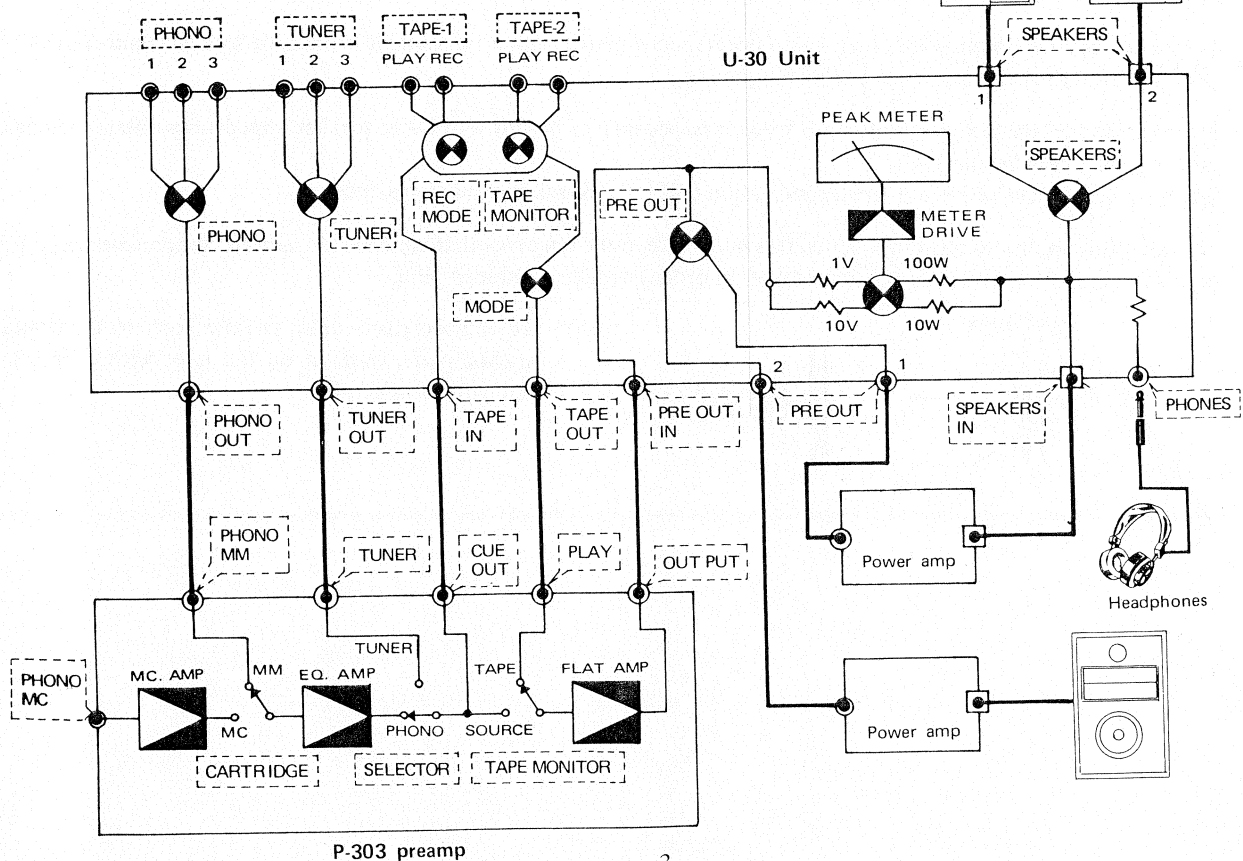
Fig-3

- (5) To remove rivets used to hold parts to the terminal anchor plate, push in on the rivet with a flat blade screwdriver as shown.

FRONT PANEL FACILITIES: USES AND FUNCTIONS

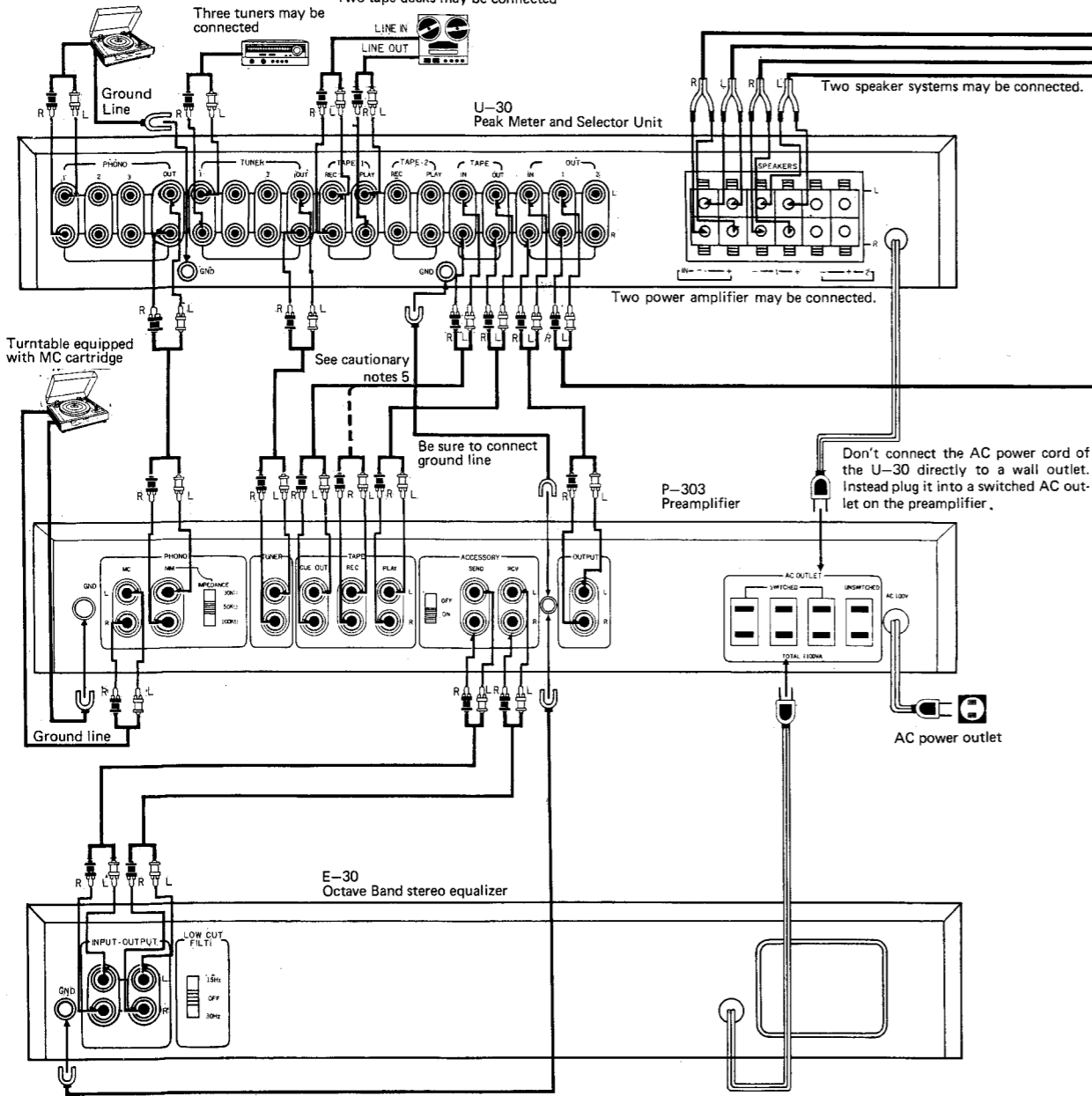


CONNECTION DIAGRAM



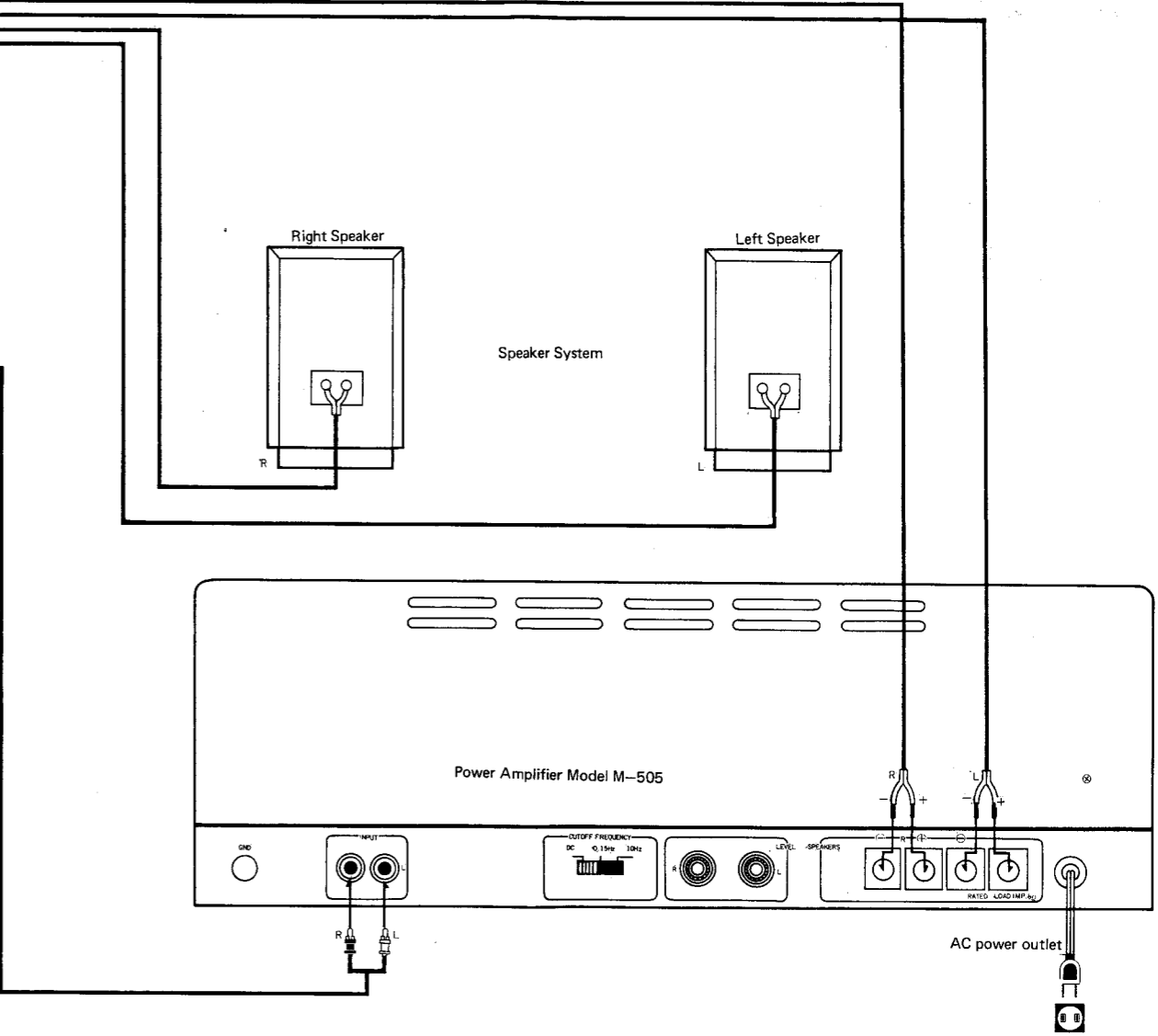
CONNECTION DIAGRAM

Three MM Cartridge equipped turntables may be connected to the PHONO input terminals. If you wish to connect an MC cartridge equipped turntable, a pre-preamp must be inserted between the cartridge output and the PHONO terminals.



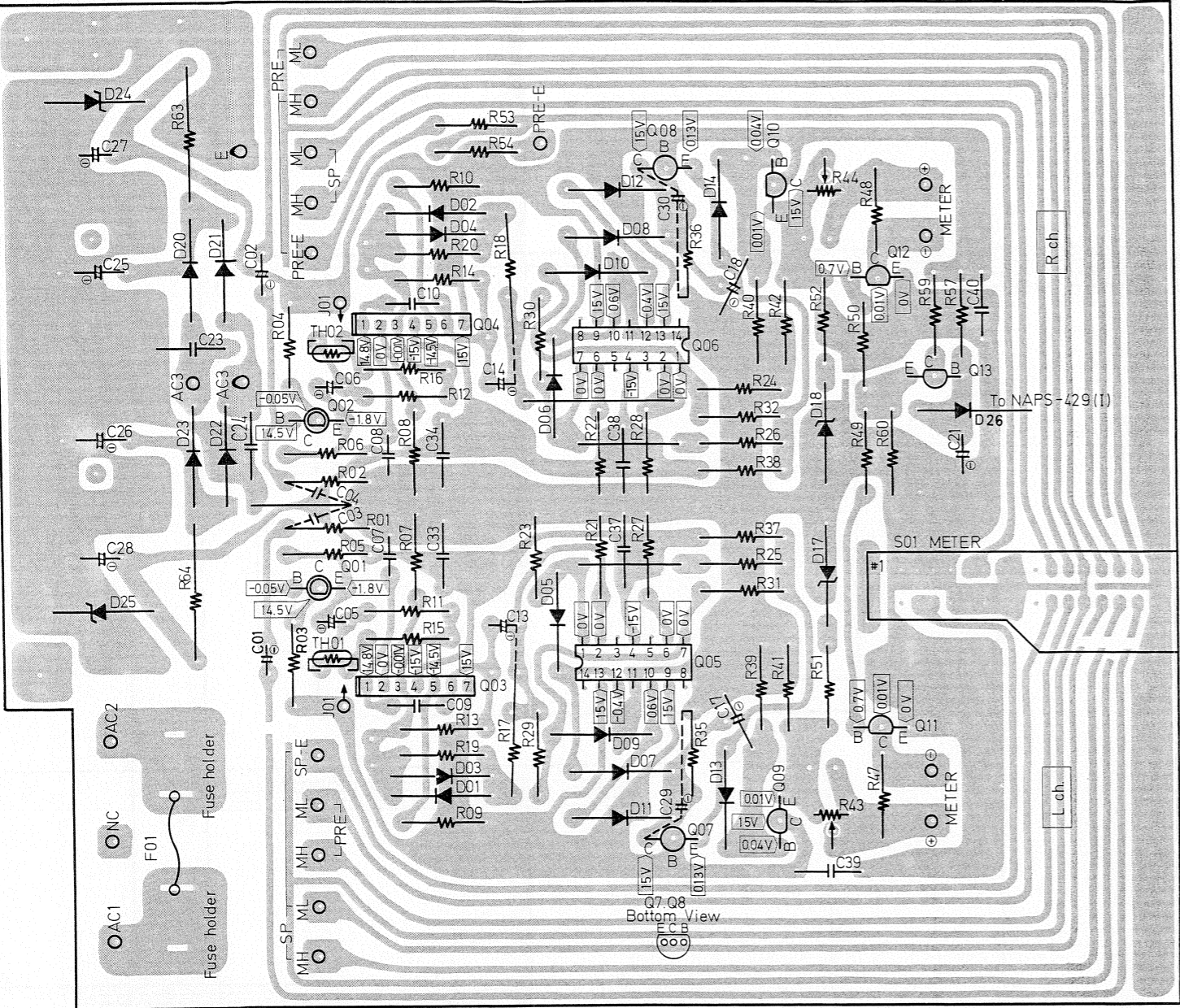
Cautionary Notes:

1. To prevent noise while connecting the various components, leave the unit off.
2. To avoid leaving the U-30 on when not in use, be sure to plug it into a switched outlet on the preamp.
3. When making connections, be sure not to confuse input and output terminals or polarity.



4. When connecting ground terminals, note whether there is an increase or decrease in hum and noise. In the case of some units it is better not to connect the ground terminals.
5. When using the E-30 with a preamp other than the P-303 the appropriate type of terminals may not be available. Should this be the case, connect the preamp output to the E-30 input and connect the E-30 output to the power amp input terminals.

PEAK METER DRIVER PC BOARD VIEW FROM BOTTOM SIDE



PARTS LIST

PHONO INPUT TERMINAL PC BOARD (NAPJ-424) – PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
P01	25045037	NPJ-8PDBL14

T. MONITOR INPUT/OUTPUT TERMINAL PC BOARD (NAPJ-425) – PARTS LIST

P01	25045038	NPJ-10PDBL15
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TUNER INPUT/OUTPUT TERMINAL PC BOARD (NAPJ-424A) – PARTS LIST

P01	25045037	NPJ-8PDBL14
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TAPE/PRE OUTPUT TERMINAL PC BOARD (NAPJ-424A) – PARTS LIST

P01	25045037	NPJ-8PDBL14
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SWITCH PC BOARD (NASW-426a) – PARTS LIST

S01	25030082	NRSM-243-30A, Phono Input Selector Switch
S02	25030082	NRSM-243-30A, Tuner Input Selector Switch
S03	25030083	NRSM-223-30A, Tape Monitor Selector Switch
S04	25030084	NRSM-244-30A, Tape Record Selector Switch

SWITCH PC BOARD (NASW-427) – PARTS LIST

S05	25030085	NRSM-165-30ZU, Mode Selector Switch
S06	25030086	NRSM-164-30ZU, Pre Output Selector Switch

RECTIFIER PC BOARD (NAPS-429) – PARTS LIST

DIODES		
D801	223802	1S1885
	223839 or	1N4002 or
D802, D803	223105	1S1555
CAPACITOR		
C802	352744711	470μF 16V, Elect
RESISTORS		
R811, R812	441626814	680Ω 1W, Metal Oxide Film
R813, R814	441623914	390Ω 1W, Metal Oxide Film
R815	451830684	6.8Ω 3W, Metal
R817, R818	441621514	150Ω 1W, Metal Oxide Film
SWITCH		
S07	25030088	NRSM-144-40ZV, Speaker Selector
RELAIES		

RL801, RL802	250166	NRS2P5ADC12, Speaker
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PEAK METER DRIVER (NAME-428a) PC BOARD – PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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TRANSISTORS		
Q701, Q702	2210676	2SC1681(BL)
Q707, Q708	2211163	2SC2120(O)
Q709, Q710	2210743	2SC945(P)
Q711, Q712	2210743	2SC945(P)
Q713	2210743	2SC945(P)

ICS		
Q703, Q704	222423	TA7136P
Q705, Q706	222457	TA75747P

DIODES		
D701-D704	223120	1S1586
D705-D712	223119	1S1588
D713, D714	223105	1S1555
D717, D718	224020	WZ-063, Zener
D719-D723	223802	1S1885
D724, D725	223908	BZ-150, Zener
D726	223105	1S1555

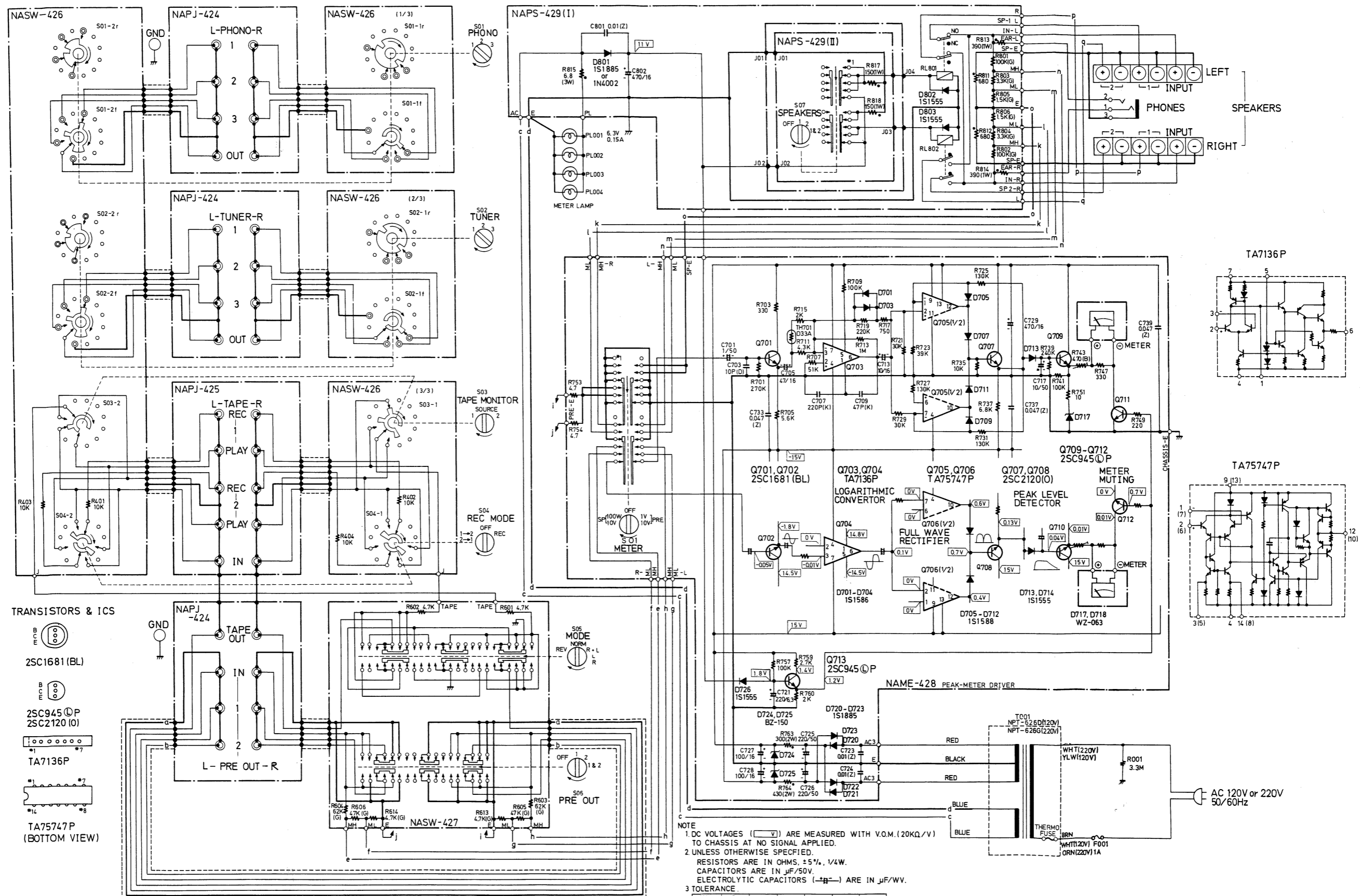
CAPACITORS		
C701, C702	352780101	1μF 50V, Elect.
C705, C706	352744701	47μF 16V, Elect.
C713, C714	352741001	10μF 16V, Elect.
C717, C718	392441017	10μF 16V, Ku
C721	352722211	220μF 6.3V, Elect.
C725, C726	352782211	220μF 50V, Elect.
C727, C728	352741011	100μF 16V, Elect.
C729, C730	352744711	470μF 16V, Elect.

RESISTORS		
R743, R744	5225026	N10HR470BD, Variable
R763, R764	441723014	300Ω 2W, Metal Oxide Film

THERMISTORS		
TH701, TH702	4000028	D33A

ROTALY SWITCH		
S701	25030087	NRSM-145-40ZV

SCHEMATIC DIAGRAM Model U-30



NOTE

- DC VOLTAGES (V) ARE MEASURED WITH V.O.M. (20KΩ/V) TO CHASSIS AT NO SIGNAL APPLIED.
- UNLESS OTHERWISE SPECIFIED, RESISTORS ARE IN OHMS, ±5%, 1/4W. CAPACITORS ARE IN μF/50V. ELECTROLYTIC CAPACITORS (E) ARE IN μF/WV.
- TOLERANCE

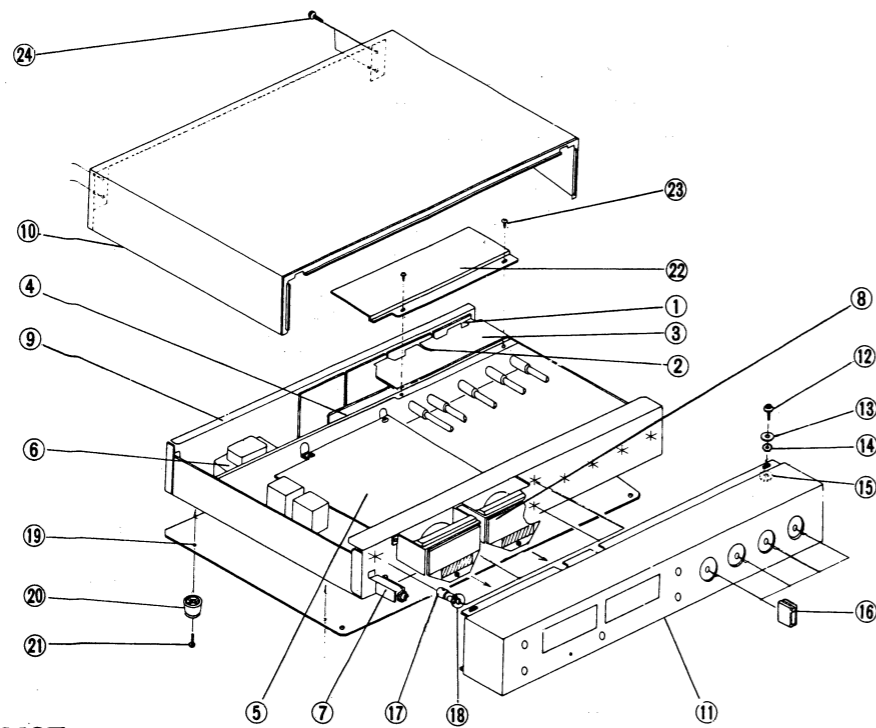
SYM.	D	G	J	K	P	Z
TOL.	±0.5pF	±2%	±5%	±10%	±100% / +80% / -0%	±20%

4. SYMBOL

- LOW LEAKAGE CURRENT TYPE ELECTROLYTIC CAPACITOR.
- NON-INFLAMMABLE RESISTOR.

ONKYO CORPORATION

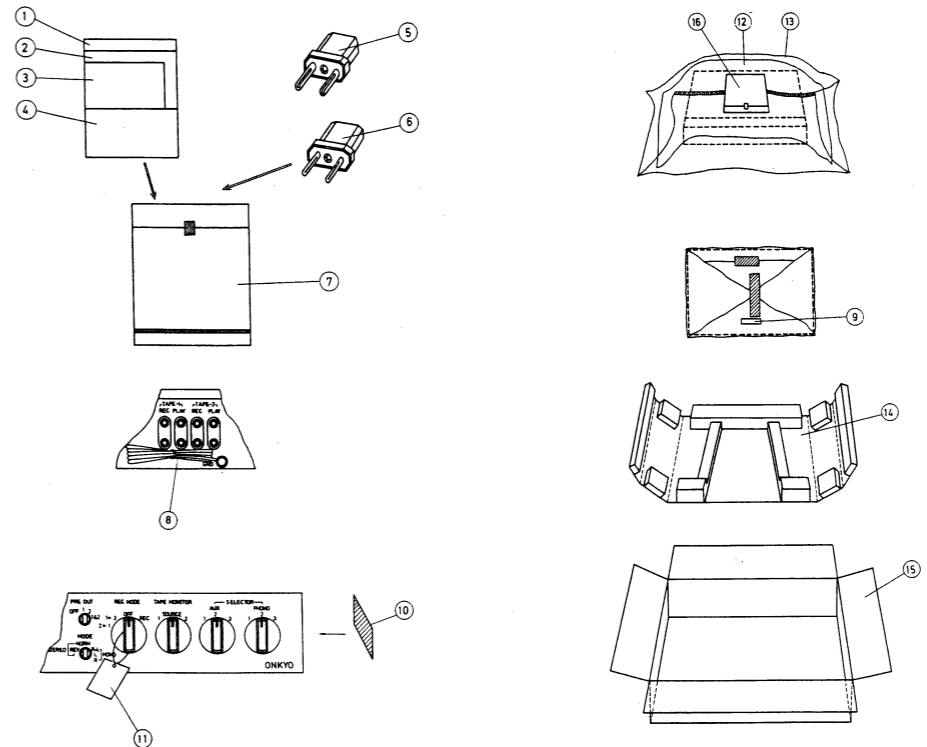
EXPLODED VIEW



PARTS LIST

REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION	REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION
1	U001	12852524	NAPJ-424, Phono Input Terminal p.c.b.	21	A633	831130102	3STW+10BQ, Tapping Screw
2	U002	12852525	NAPJ-425, Tape Monitor Terminal p.c.b.	22	A035	27150063A	Shielded Plate
3	U003	12749526A	NASW-426a, Switch p.c.b.	23		834130062	3STS+6BQ, Tapping Screw
4	U004	12852527	NASW-427, Switch p.c.b.	24		831430082	3STW+8BQ(BC), Tapping Screw
5	U005	12749528A	NAME-428a, Peak Meter Driver p.c.b.	U006		12852529	NAPS-429, Rectifier p.c.b.
6	T001	230221	NPT-626D, Power Transformer (120V Model)	U007		12852524A	NAPJ-424a, Terminal p.c.b.
	T001	230222	NPT-626G, Power Transformer (220V Model)	PL001-PL004		210003	6.3V 150 mA, Meter Light
7	P001	25045032	LJ-249-1-2, Stereo Head-phone Jack	R001		431523355	3.3Ω ½W, Solide Resistor
8	M001, M002	243074	NIND-2000S74, Peak Level Meter	P002		250124	VE-0202, Socket for PL001-PL004
9	A050	27120096	Back Panel (120V Model)	P003a, P004a		270665	Ground Terminal
	A050	27120097	Back Panel (220V Model)	P005		25060027	NTM-12PML04, Speaker Terminal
10	A301	28110123	Amp. Cover			25050014	Fuseholder
11		12749121	Front Panel Ass'y	F001		252001	1A-T, AC Fuse
	A501	27210085	Front Panel			253072	AS-UC, Power Supply Cord
	A502	28125037-1	End Cap L			270025	SR-3P-4, Strainrelief
	A503	28125038-1	End Cap R			260208	SKB-1, Binder
	A504	27262027	Plate for Knob	A001		27110045A	Front Bracket
12		831430082	3STW+8BQ, Tapping Screw	A003		27260008	Shaft
13		87614012	W4 x 12F, Washer	A004		27260009	Shaft
14		87313006	M3-B, Toothed Lock Washer	A005		27273002	Joint
15		87618014	W8 x 14F, Washer	A006		27190002B	Holder
16	A802	28320190	Knob V	A008		28199003	Film
17	A801	28320189	Knob	A302		27270020	Spacer
18	A806	27270022	Spacer T				
19	A631	27170021C	Bottom Board				
20	A632	27175009	Leg				

PACKING PROCEDURES



PARTS LIST

REF. NO.	DESCRIPTION	U.S.A. Model	120V Model	220V Model	Germany Model
1	Instruction Manual	29340238	29340238	29340238	29340238
2	Service Station List	29358001	_____	_____	_____
3	Caution Card for 4	29355046	_____	_____	_____
4	Warranty Card	29365003	_____	_____	29365001-1
5	CV-C, Conversion Plug	_____	_____	292005	292005
6	CV-BS, Conversion Plug	_____	_____	292006	_____
7	250x350mm, Poly Bag	29100006	29100006	29100006	29100006
8	Shielded Wire	12749703	12749703	12749703	12749703
9	Caution Label	293041	293041	_____	_____
10	Caution Label A	282969	282969	_____	_____
11	Cabinet Composite Tag	29380031	_____	_____	_____
12	500x800mm, Protection Sheet	29095012	29095012	29095012	29095012
13	550x850mm, Poly Bag	29100019A	29100019A	29100019A	29100019A
14	Pad	29090228	29090228	29090228	29090228
15	Carton Box	29050156	29050156	29050156	29050156
16	Accessory Bag Complete				

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